USGS science for a changing world

Earthquake Shaking — Green Alert

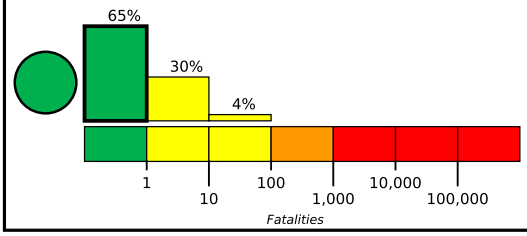
GSN ANSS USAID FROM THE AMERICAN PEOPLE

M 6.4, 47 km NE of Barcelona, Philippines

Origin Time: 2023-12-02 16:03:43 UTC (Sun 00:03:43 local)
Location: 8.4150° N 126.7761° E Depth: 64.3 km
FOR TSUNAMI INFORMATION, SEE: tsunami.gov

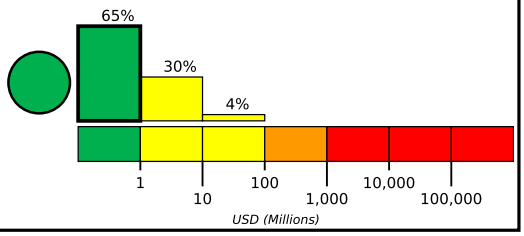
PAGER Version 3
Created: 1 day, 0 hours after earthquake

Estimated Fatalities



Green alert for shaking-related fatalities and economic losses. There is a low likelihood of casualties and damage.

Estimated Economic Losses

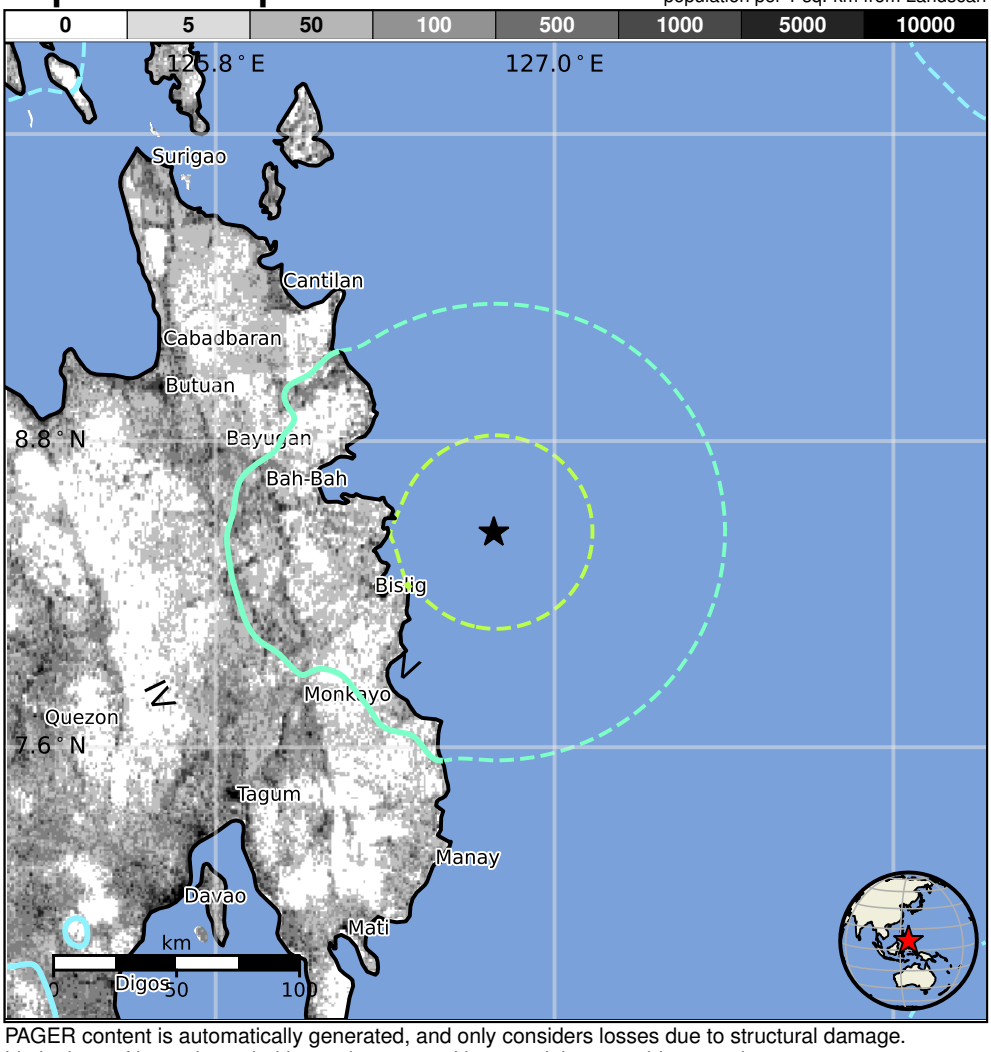


Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (k=x1000)		–*	81k*	8,665k	994k	23k	0	0	0	0
ESTIMATED MODIFIED MERCALLI INTENSITY		I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING		Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	None	None	None	V. Light	Light	Moderate	Mod./Heavy	Heavy	V. Heavy
	Vulnerable Structures	None	None	None	Light	Moderate	Mod./Heavy	Heavy	V. Heavy	V. Heavy

*Estimated exposure only includes population within the map area.

Population Exposure



Structures

Overall, the population in this region resides in structures that are a mix of vulnerable and earthquake resistant construction. The predominant vulnerable building types are unknown/miscellaneous types and heavy wood frame construction.

Historical Earthquakes

Date (UTC)	Dist. (km)	Mag.	Max MMI(#)	Shaking Deaths
1987-05-23	149	5.7	VII(70k)	1
1990-02-08	279	6.7	VIII(96k)	1
2002-03-05	388	7.5	VIII(12k)	15

Recent earthquakes in this area have caused secondary hazards such as landslides that might have contributed to losses.

Selected City Exposure

from GeoNames.org

MMI	City	Population
VI	Hinatuan	10k
VI	Tidman	3k
VI	**Bislig**	**68k**
V	Barcelona	4k
V	Loyola	3k
V	Bigaan	3k
IV	**Butuan**	**310k**
IV	Libertad	250k
IV	Magugpo	233k
IV	**Davao**	**1,213k**
IV	**Digos**	**116k**

bold cities appear on map. (k=x1000)

https://earthquake.usgs.gov/earthquakes/eventpage/us7000lfi0#pager

Event ID: us7000lfi0